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THE Hampden Hippocrat

MARCH-APRIL 1994

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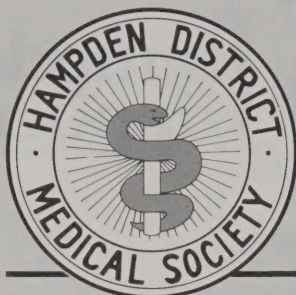
The official bulletin for The Hampden District of the Massachusetts Medical Society. Founded in 1942 by Edward P. Bagg, Jr., M.D. and William A. R. Chapin, M.D.

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HAMPDEN DISTRICT MEDICAL SOCIETY 1993-1994 SEASON

ANNUAL MEETING

PLACE: **CARRIAGE HOUSE**
Old Storowton Tavern
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DATE: Tuesday, April 26, 1994

BUSINESS MEETING: 6:00 p.m.

SOCIAL HOUR: 7:00 p.m.

DINNER: 7:30 p.m.

SPEAKER: SANDRA EAGLETON, Ph.D., President
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TOPIC: Your Community Foundation

NOTE: If you must cancel your dinner reservation, please call the HDMS office before noon on April 26th. If the cancellation is not made, you will be **BILLED** for your dinner.

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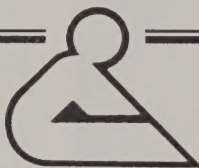
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From the Editors

This issue highlights some of the significant medical research being done in the pioneer valley. It is easy to forget that in our relatively small community, world-class research is going on. We do a lot better per capita than they do in Boston!

Ironically, as we approach an era of increasing regulation, tight funding, and bizarre and untried methods of health care provision, we are beginning to finally reach a critical mass (research-wise) in the Pioneer Valley. The future looks bright; maybe.

*Brigid Glackin, M.D.
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Education and Primary Care

Over the past decade there has been a renaissance of interest in primary care. Availability of primary care is seen as a solution to several access issues: 1. the underserved would not have



Francis D. Horrigan, M.D., President

to enter the emergency system first—a public health issue, 2. patients would be accessed to appropriate specialty services—an insurance cost containment issue, and 3. specialists need a primary care base for access to patients—a professional relations issue induced by 1 and 2. If only, think the policy works, there were enough primary care providers where we want them all appropriate care would be delivered in the most cost effective manner. I fear that primary care, like most quick fixes, has become a buzzword whose definitions become blurred and shaped to the goals of whatever interest group holds forth at the moment. If we are to achieve an effective efficient health system it is imperative that we understand the relationships of its components. So we need to understand what is meant by primary care.

Primary care promotes wellness in a patient population at several levels—keeping vaccinations up to date, educating patients to various actions to promote good health as well as what to avoid, monitoring for existing or developing risk factors or disease surveillance as well as speaking to promote good community health policy.

Primary care physicians diagnose and treat ailments using classic and modern techniques judiciously applied to the individual's particular problem. Very often the physician can perform this function very nicely. Occasionally a patient will have one or several problems requiring the attention of one or more specialties. Here the primary care physician must prioritize and coordinate several technical and occasionally conflicting orders to the maximum benefit of the patient.

As medical knowledge has evolved and expanded, the medical profession and society have developed standards to be met by those who would be physicians and ultimately responsible for patient care. These standards have been agreed upon by codification of curricula leading to degrees, post graduate training standards and experience, examinations for licensure as well as certification in various specialties. While critics of our profession say this was economic self interest I don't think anyone could seriously argue that these are not very high standards and, when properly applied, work very well.

Education must occur at several levels to meet society's needs. In medical education we are seeing increasing emphasis on primary care. For many years medical school and post-graduate training emphasized and glamorized the rare and unusual to gain biologic insight into human illness often to the extent of regarding the community physician as well-meaning but benighted patient source. As the huge but very different problems of urban and rural

America have demonstrated the need for broad based highly professional care, medical educators are expanding the classroom to involve not only highly specialized hospital skills but also clinic and office skills. Those of us who practice primary care in our offices may become valuable educational resources.

Presently there is a perceived shortage of primary care physicians which may become more acute if access is increased. One proposed solution involves a mandatory quota of primary care training slots. Whether this would have the desired effect is problematic because (a) the government shouldn't mandate someone's life and (b) the government shouldn't have such a lock on medical education as to even remotely threaten research freedom. Another proposed solution is the use of nurse practitioners or physicians' assistants. Many physicians find this an excellent way to deliver efficient care in large practice settings. To use these providers in independent practice as some have suggested is not a good idea. Proponents cite studies in which physician extenders perform tasks as well as a physician—the recent study regarding nurse practitioners doing flexible sigmoidoscopy is an example. Other studies show effectiveness in very defined populations. Good primary care however is not a sum of tasks but is an art of coordinating multiple variables in a diverse population in an effective way.

If society does redefine the qualification for primary care for independent extender practice it would be reasonable to ask why a bright young person should expend the years and dollars to become a primary care physician. Additionally society must recognize that the primary care physician is much more than a ticket to specialty care and proper sufficient recognition and professional satisfaction to attract the finest candidates into the field. ■

Healthcare Expo '94

New England's largest health care exposition will be held beginning April 27 at the Hartford Civic Center. Exhibitions of 285 companies will feature products and services. There will be numerous educational events, including panels on health care reform, electronic data interchange, renovating facilities for the future, and integrated delivery systems.

For additional information, call Sharwayne Yazmer, Robert Donnell Productions, 203-677-0094, or outside Connecticut, 800-243-9774. ■

In Memoriam

Sheldon S. Goldberg, M.D., died on February 21, 1994. He was the director of Otorhinolaryngology at Baystate Medical Center. He was graduated from Tufts University School of Medicine, and trained in surgery at Temple University. He served in numerous professional organizations, and was past president of Temple Beth El. He is survived by his wife, Judith Plotkin-Goldberg, a son, Michael, and two daughters, Marcy and Alisa.

Paul M. Ashton, M.D., died on February 12, 1994. He received his medical degree from Johns Hopkins University and trained in Baltimore, Montreal, and New York. He was chief of staff at the Wesson Maternity Hospital, where he practiced obstetrics and gynecology. He leaves a daughter, Patricia. ■

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Baystate Medical Center Children's Research Programs: 1993-1994

Edward Reiter, M.D., Chairman of the Department of Pediatrics at Baystate Medical Center, has led and fostered a climate of vigorous investigation into pediatric medicine issues. He describes many of these initiatives in the following article.

The modern children's hospital must have extensive research activities in areas which affect the health of children. Such research programs generally include activity in the areas of childhood growth and development, infectious disease, and neonatal intensive care as mainstays of the research, with investigative work scattered among other subspecialty areas as is appropriate for the strengths of a given children's hospital. Baystate Medical Center Children's Hospital does have research activity in the major areas noted above, as well as programs in other subspecialties. Research activities may be quite basic, including the newest techniques of molecular biology, be traditional clinical research, or have broader horizons, as in so-called health-services research.

Growth And Development

The normal and abnormal functioning of the hypothalamic-pituitary-somatomedin-production axis has been a central research endeavor in our Laboratory of Neuroendocrine Research, established 4 years ago. Drs. Paul Martha, Nathaniel Clark, David Kew and Edward Reiter have assessed the nature of the molecular regulation, at the hypothalamic level, of synthesis and release of the growth hormone-releasing (GHRH) and release-inhibiting (SRIF) hormones. Additionally, the impact of a

The modern children's hospital must have extensive research activities in areas which affect the health of children.

neuropeptide, gallanin, upon pituitary release of growth hormone was studied in a collaborative project with members of the Department of Medicine's Endocrinology Section. A number of clinical projects focusing on the importance of the circulating growth hormone-binding protein, a reflection of tissue growth hormone receptor content, have been reported. Dr. Mary Murray, a new member of the Section of Pediatric Endocrinology, will be studying the molecular basis for the significant growth failure which occurs in the syndrome of intrauterine growth retardation. The techniques in these studies will be the most modern tools of molecular biology and be in collaboration with members of the growing group of molecular biologists in the Medical Center.

In the area of developmental pediatrics, Drs. Susan McQuiston, Edward Bailey, Joseph Donnelly, and Nancy Kloczko have studied the impact of cocaine usage by pregnant women upon their babies. This NIH-funded program has been ongoing for the past three years and promises to help us understand the nature and duration of the impact of intrauterine exposure to such drug exposure.

Finally, in this area, Dr. Edward Bailey and a number of full-time and community pediatrician collaborators are involved in several programs assessing new infant formulas. This research permits the continuing improvement of infant nutrition which has characterized the past century. The presence of a large population of normal newborn infants has made our Children's Hospital an attractive site for such research activity.

Infectious Disease

Drs. Barbara Stechenberg, Naomi London, and Donna Fisher, along with a dedicated collaborative support staff, have developed a large and highly productive childhood AIDS treatment center, as part of their High Risk Clinic program. Working with colleagues at the University of Massachusetts Medical School, this group has received substantial extramural funding and is an important part of the national AIDS clinical trials program, participating in nearly ten different treatment trials. Our program has focused upon assessing the importance of a multi-disciplinary approach to AIDS care, with ongoing nursing, nutritional and psychosocial support, augmenting the diverse drug treatment programs. Presently, they are beginning to examine the nature of the growth failure and catabolic state which begins in early infancy in HIV-infected babies. Our program has collaborated with the Departments of Medicine and Obstetrics and Gynecology in studying different aspects of the mother-fetus-infant HIV problem.

Neonatal Intensive Care

As would be expected in a very large and sophisticated newborn medicine program, considerable investigative work has been undertaken. Dr. Bhavesh Shah, jointly receiving NIH funding with the Tufts Neonatology group, is participating in a study which evaluates the hypothalamic-pituitary-adrenal axis of neonates whose mothers have received antepartum glucocorticoid treatment. Dr. Thomas Campfield, working with Dr. Gregory Braden of the Department of Medicine, has published several seminal articles on the problem of hyperoxaluria, an important part of the pathogenesis of neonatal nephrocalcinosis, a relatively frequently occurring problem in intensively-treated low birthweight infants. Dr. Gary Rockwell, in a long-term relationship with the Department of Chemistry at the University of Massachusetts (Amherst), has studied the presence of toxic chemicals, such as nicotine metabolites, which exist at low though significant levels in low birthweight and normal newborns. These studies have demonstrated the caution which is required in the use of drug preservatives and skin cleansers, which might, in the adult population, have no significance. Dr. Kathleen Neyer, working with Dr. Shah and biostatisticians from the University of Massachusetts (Amherst) has reported on the development of a predictive scoring system for the prognosis of tiny, ill neonates, based upon respiratory status in the

Continued on next page

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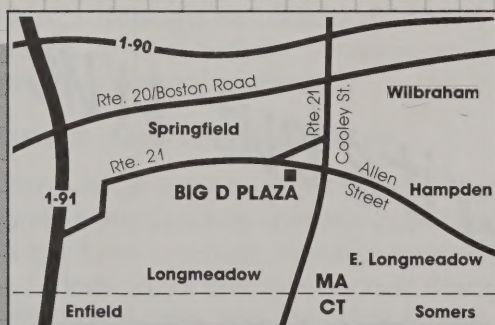
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Research Programs: 1993-1994

Continued from previous page

early newborn period. Use of such scoring systems may help to plan the nature of care required for a given neonate early in their long intensive care unit stay.

These are but a few of the investigative activities that are on going in newborn medicine. Other projects in early stages include evaluation of white blood cell function in sick neonates and measurement of growth hormone-related peptides in infants with intrauterine growth retardation.

Exercise Physiology

Dr. Thomas Rowland has a long research career, with many publications, two texts and editorship of *Pediatric Exercise Science*, he has focused upon the nature of cardiopulmonary and metabolic function in exercise, both in normal and abnormal children. He has brought the sophistication of research in exercise physiology of adults and animal models to the pediatric age group and has received national recognition for his studies. Ongoing research includes a longitudinal assessment of the development of the cardiopulmonary system responses to vigorous exercise during childhood and early adolescence. Dr. Rowland has collaborated with many investigators, regionally, nationally and internationally, and has been a thoughtful primary investigator in many of these projects.

Other Research Activities

In pediatric neurology, Dr. Anthony Jackson and his co-workers have led a collaborative trial on the therapeutic effects of intravenous gammaglobulin therapy and the course of Guillain-Barre Syndrome. In hematology-oncology, Drs. Jack Kelleher and Philip Monteleone have participated actively in the national Children's Cancer Study Group, while also examining useful diagnostic hematologic studies. In the area of adolescent medicine, Drs. Nancy Miller and Laura Koenigs have been actively assessing potential avenues of altering the reproductive endocrine system in sexually-active teenagers hoping to safely and certainly prevent unwanted pregnancies. Dr. Miller also has been assessing the important area of pregnancy in women who are in the midst of their residency training. This research has great importance for those who are residency program directors, especially in primary care specialties where women may fill more than 50% of available positions. ■

Hampden Committee Activities

Our Society secretary brings us up to date on recent committee activities.

Our Winter District Meeting was held on January 25, 1994 at the Sheraton Springfield Monarch Place. Dr. Robert McAfee, President-Elect of the American Medical Association, was our speaker for the evening.

Over 100 persons came to hear Dr. McAfee speak. In addition to our members and their wives, the group also include physicians representing the New England Delegation to the American Medical Association, resident members from Baystate Medical Center and members of the newly reformed Hampden District Medical Society Auxiliary.

The Public Health Committee met in January and discussed an article provided by Dr. Douglas Barnshaw on the single payor concept for national health insurance. They also discussed the Hampden Hippocrat issue which will be devoted entirely to the Springfield Public Health Department.

The Medico-Legal Committee met in January. The committee discussed the problem facing physicians subpoenaed to give a patient's medical record to the Court when the patient has not given their written approval to the physician. A statute change was suggested and a draft will be prepared for the next meeting.

Attorney Melinda Phelps asked for our help in finding physician volunteers to serve in the Berkshire County Medical Tribunal System. An announcement will be printed in the Hippocrat and Dr. Mullan will talk to our members at the January District Meeting.

Because there seems to be a lack of knowledge concerning the tribunal system, it was suggested that we hold a "Mock Tribunal" program at the Medico-Legal Forum this fall. The Medico-Legal Forum will be held November 3, 1994 at the Delaney House in Holyoke. ■

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Critical Care and Health Services Research

Dan Teres, M.D., with Stan Lemeshow, Ph.D., have created a body of work which has profoundly impacted upon the modern intensive care unit. In the following, Dr. Teres describes his long-running studies in Critical Care, which bridge medicine, epidemiology, biomathematics, and economics.

During the last ten years, a unique collaboration between the Critical Care Division of Baystate Medical Center and the School of Public Health at the University of Massachusetts has produced nationally recognized and highly significant research.

In the early 1980's, about the same time as the APACHE scoring system was first published to reflect the severity of illness in ICU patients, Stanley Lemeshow, Ph.D., a biostatistician at the University of Massachusetts, and the author felt that a better way to analyze such data would be through multivariate logistic regression. Scoring systems, such as the APACHE system, are somewhat arbitrary, and depend on pre-determined assumptions. Logistic regression is basically a method for determining directly the probability that a particular patient will survive the ICU experience.

The author and his collaborators, including Dr. David Hosmer, a statistician from the University of Massachusetts, and Jay Steingrub, M.D., the director of the Medical ICU, received the first in a series of grants to develop and disseminate this new mathematical technology.

As physicians, it is necessary not only to treat and diagnose, but to offer prognosis as well. Although we are good at the former, in many areas, our prognosis continues to be an educated guess. Critical Care is widely viewed

as an expensive technology, and the ability to use it more appropriately is an important public policy goal. By more scientific modeling, it should be possible to determine patients at both ends of the spectrum who would not benefit from care in the Intensive Care Unit. The person who would do just as well in an acute care bed as in the ICU is one case; the patient who is almost certainly going to die of his/her disease whether or not the ICU is utilized is the other. The object of

a model is to be able to precisely predict these outcomes prior to the decision to admit the patient to the ICU.

Unfortunately, using a model has several problems, both actual and potential. First, it does not distinguish patients who do well because they enter the ICU (or conversely,

those rare patients who might have ICU-iatrogenic catastrophes). Second, using a model to predict the outcome and then denying ICU access on that basis is fraught with legal and emotional complications in today's society.

The first study, utilizing experience in the Intensive Care Unit at Baystate Medical Center, resulted in additional questions. Does the model work in other ICU settings? How can its accuracy be measured? Drs. Hosmer and Lemeshow developed a method called "calibration" to complement the discrimination methodology already at hand.

The second study utilized several additional hospitals, including University of Massachusetts Medical Center, Albany Medical Center and Ellis Hospital in Schenectady to further test and refine the model.

Dr. Lemeshow in association with Dr. Jean Le Gall of Paris, the inventor of the SAPS severity

As physicians, it is necessary not only to treat and diagnose, but to offer prognosis as well.

scoring system widely used in Europe, proposed the initiation of a multi-hospital and multi-national study comparing the Baystate/UMass model (the MPM or Mortality Probability Model) with the European model (SAPS or Simplified Acute Physiology Score) and the current APACHE system. 137 hospitals participated over a 3 month period. In our area, Dr. George Karras at Mercy hospital actively collaborated.

As time has gone on, our collaboration has included Stephen Gehlbach, M.D., Dean of the School of Public Health at University of Massachusetts; and John Rapaport, Ph.D., health economist at Mount Holyoke College. Clinical performance as well as cost performance has been studied. The development of these methods permit the comparison of ICU's in terms of quality, cost effectiveness, and performance.

One unusual finding was that there was reduced resource consumption for patients in the ICU who were insured by managed care plans, as opposed to those treated under conventional fee-for-service. This finding was surprising, since ICU patients are cared for by the same house staff, and are unaware of the insurance of the patient involved. Several possi-

ble explanations for this finding exist. It may be that managed care patients "on the margin" are less likely to be referred for consideration of ICU admission; or it may be that the population not insured by managed care is skewed towards "uninsurable", older, and low socioeconomic group patients, who might be expected to have pre-existing health problems impacting on ICU outcome. In the near future, a Ph.D. candidate will begin looking at psychological aspects of managed care versus fee-for-service in clinical decision making.

The ongoing participation in this collaborative research effort has been rewarding, intellectually stimulating, and demanding of time. It has been exciting to be part of an effort that is literally "writing the book" on ICU severity models.

Although federal agencies have supported our projects to a total of nearly five million dollars over the years, the goal of having a cost-containment tool has not yet been realized. It is simply inappropriate to use an admission probability score to deny a patient access to the ICU. However, it may be possible to utilize predictive models to define patients who might be discharged early from intensive monitoring and care. ■

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Cardiac Surgical Research in the Pioneer Valley

Richard Engleman, M.D., has directed a major research effort in issues related to cardiac surgery. This collaboration between his service and the University of Connecticut has been extraordinarily fruitful, as you will note in the following.

The Cardiac Surgical Group of Baystate Medical Center has been an extremely productive research team.

Clinical Research

Each patient undergoing cardiac surgery at Baystate Medical Center is entered into a national data base designed to promote optimal care. The data base incorporates information about the period prior to operation, during the surgery, and in the recovery phase.

Patients are entered into our own NIH sponsored study entitled "The influence of Cardiopulmonary Bypass Temperature on CABG Morbidity". We have been comparing normothermic and hypothermic (20°C) perfusion. Normothermic perfusion seems to induce a more rapid recovery and earlier extubation after open heart surgery. We hope to further refine this conclusion in the randomized study we have undertaken, the first of its kind in the world.

Another study, called the CABG-Patch trial, is a multi-institutional NIH sponsored study. Patients with an ejection fraction less than 36% prior to surgery are randomized to receive an automatic internal Cardioverter Defibrillator (AICD) or be observed. The thought is that the AICD device will reduce the relatively high risk of malignant ventricular arrhythmias in this group.

A third investigation is the Acadescine Study. This drug is an adenosine-regulating agent which promotes adenosine retention during ischemia and stress. Adenosine is important in the production of the high-energy compound,

adenosine triphosphate. Prevention of adenosine degradation may protect the myocardium and prevent infarction. This is a double-blind randomized study.

Our program has pioneered warm heart surgery. In this setting the heart is protected by warm rather than cold blood during cardioplegia. Our work, recently presented at the Society of Thoracic Surgery, showed that warm heart surgery prevents myocardial stunning and improves recovery; the incidence of cardiac failure, use of balloon pumps, and rapidity of recuperation was significantly improved by warm heart surgery.

Baystate Medical Center and Hartford Hospital have investigated the Fast Track Approach to cardiac surgery. The protocol involves 1) preoperative education; 2) minimizing the use of intraoperative crystalloid to reduce postoperative fluid gain; 3) extubation following surgery at four to eight hours by using inhalational rather than narcotic anesthesia; 4) use of steroids to control post-surgical inflammatory responses; 5) routine digitalization to reduce the postoperative risk of rapid atrial fibrillation; 6) promotion of early bowel recovery by use of metoclopramide and colace; 7) the use of H2 blockers to reduce postoperative gastric acidity; 8) early rehabilitation, beginning the morning following surgery; 9) the use of strict physiologic and clinical criteria for discharge; 10) a fast-track coordinator to monitor patients by phone daily for the first week after discharge. This fast-track system has been the subject of a nationwide teleconference and was presented at the last annual meeting of the American College of Surgeons.

The randomized trial of warm versus cold perfusion is the first of its kind in the world.

Basic Research

The Cardiac Surgical Service operates an NIH-funded animal laboratory at the University of Connecticut in Farmington, and for fifteen years has studied methods to protect hearts from ischemic injury during surgery.

We are focusing on means to enhance the endogenous cellular defense system of the heart. This "preconditioning adaptation" is accomplished by applying a small amount of stress to the heart to promote neurohormonal changes and manipulate the genetic apparatus. We have found that ischemic, hypoxic, thermal, and oxidative stress have all had a positive effect. We suspect that the final common pathway may be the preservation of antioxidant reserve and the activation of the signal transduction pathway through alpha receptor signaling. Hypoxic preconditioning may act by stimulating the ascorbate and thiol status of the heart, thus protecting the heart from free radical generation. This work has been presented at several national meetings.

Ultimately myocardial adaptation must be achieved at the molecular level by inducing the expression of genes responsible for protection and repair. We have shown that this is associated with the expression of stress-related genes which form heat shock proteins, antioxidants, catalase, and certain proto-oncogenes. We have adopted the technique of subtraction hybridization to study so far unknown genes, and have shown that genes expressed early in infarction are mitochondrial rather than nuclear. We have cloned and identified two of these genes by DNA sequencing, followed by searches for the GenBank and EMBL databases. Recently we have synthesized custom oligonucleotide primers which are now being used for monitoring the gene expression by the reverse transcription polymerase chain reaction, and recently have used Message Amplification Phenotyping to determine the time course of expression of the genes of interest from myocardial biopsies. The technique may permit the early detection of deleterious changes, allowing introduction of timely therapeutic measures. Likewise the expression of potentially harmful genes can be prevented and beneficial genes induced by approaches such as transfection. Genes may be used to produce potentially beneficial drugs by identifying the putative proteins involved, and then manufacturing and purifying these through in vitro translation and immunochemical purification.

In summary, cardiac surgical research at Baystate Medical Center is wide ranging and internationally recognized. Our findings have had and continue to have a major impact on quality of care wherever cardiac surgery is practiced. ■

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New Members Welcome

Lee N. Steckowych, M.D.
Baystate Medical Center
759 Chestnut Street
Springfield, MA 01199

Born: June 1, 1960
Premed: St. Anselm College, New Hampshire
1978-1982
Medical: Tufts University Medical School
1985-1989
Internship: Northwestern Memorial, Illinois
1989-1990
Residency: Northwestern Memorial, Illinois
1990-1993
Specialty: Emergency Medicine

Ruby Chang, M.D.
591 James Street
Chicopee, MA 01020

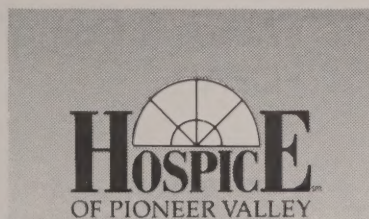
Born: September 1, 1956
Premed: National Taiwan University 1975-1977
Medical: College of Medicine, National Taiwan
University 1977-1982
Internship: Baystate Medical Center 1982-1983
Residency: Baystate Medical Center 1983-1986
(Includes Chief Residency)
Specialty: Primary Care Pediatrics

Robert B. Goldberg, M.D.
305 Bicentennial Highway
Springfield, MA 01118

Born: February 5, 1957
Premed: University of California-Davis 1976-1980
Medical: University of California-San Diego
1984-1988
Internship: Boston University Medical Center
1988-1989
Residency: Boston University Medical Center
1989-1991
Specialty: Internal Medicine

John R. Lundin, M.D.
Baystate Medical Center
759 Chestnut Street
Springfield, MA 01199

Born: December 22, 1955
Premed: Hamilton College, New York 1974-1978
Boston University 1980-1983
Medical: St. George University School of Medi-
cine, Grenada, West Indies 1984-1985
College of Osteopathic Medicine of the
Pacific, CA 1988-1990
Northeastern Ohio Universities Col-
lege of Medicine 1990-1992
Internship: Baystate Medical Center 1992-1995
Residency: Baystate Medical Center 1992-1995
Specialty: Internal Medicine
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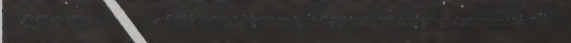
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